REMARKS

The specification and claims have been amended to improve clarity and correct typographical errors. No new matter has been added. Examination on the merits is respectfully requested.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

Respectfully submitted,

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SHOULD ADDITIONAL FEES BE NECESSARY IN CONNECTION WITH THE FILING OF THIS PAPER, OR IF A PETITION FOR EXTENSION OF TIME IS REQUIRED FOR TIMELY ACCEPTANCE OF SAME, THE COMMISSIONER IS HEREBY AUTHORIZED TO CHARGE DEPOSIT ACCOUNT NO. 19-0741 FOR ANY SUCH FEES; AND APPLICANT(S) HEREBY PETITION FOR ANY NEEDED EXTENSION OF TIME.

APPENDIX A

VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the Claims:

1. (Amended) A grating optical sensor comprising: a lens [(1)] imaging an object space[,]; a diffractive hexagonal 3D grating optical modulator [(4)] in the image plane [(5)] of the lens [(1),] to form at least one trichromatic RGB diffraction pattern; a photoelectric receiver arrangement [(8)] arranged in the near field downstream of the modulator [(4)], having individual receivers configured to generate electric signals in accordance with [the] centrosymmetrically trichromatic RGB diffraction orders [(R, G, B), and] of the diffraction pattern; an evaluation device for the electric signals generated by the individual receivers [(8), characterized in that]; and at least one light-diffusion glass [(9) is] arranged in [the] one of a pupillary plane of the lens [(1) or in] and a pupillary plane conjugate [thereto] to the lens.

2. (Amended) The grating optical sensor as claimed in claim 1, [characterized in that] wherein the light-diffusion glass [(9)] has a grating structure.

3. (Amended) The grating optical sensor as claimed in claim 1, [characterized in that the] wherein the glass has a diffusion characteristic [of the glass (9) is] selected so as to produce an image of the object space with uniformly superimposed background radiation from the object space.

4. (Twice Amended) The grating optical sensor as claimed in claim 1, [characterized in that the] wherein a spectral transmission of the lens [(1)], the diffusion glass, [(9)] and the modulator [(4)] is limited to the visible region of electromagnetic radiation.

5. (Amended) The grating optical sensor as claimed in claim 4, [characterized in that the] wherein the spectral transmission is limited to the wavelength region of 380-780 nm.

6. (Twice Amended) The grating optical sensor as claimed in claim 1, [characterized in that the] wherein the individual receivers [(8)] are set to an identical spectral sensitivity for a radiation source [(3)] emitting white light.

7. (Twice Amended) The grating optical sensor as claimed in claim 1, [characterized in that the] wherein the individual receivers [(8)] assigned to the same chromatic diffraction order [(R, G, B)] in the trichromatic RGB diffraction pattern [(6)] are interconnected to form a local chromatically additive brightness value [(10, 10')] for each chromatic diffraction order.

8. (Twice Amended) The grating optical sensor as claimed in claim [1] 7, [characterized in that] wherein the evaluation device includes a comparison arrangement [(12)] for determining [the] which trichromatic diffraction pattern [(6) with] has the best agreement between the local chromatically additive brightness values [(10, [lacuna]0')].

9. (Twice Amended) The grating optical sensor as claimed in claim 1, [characterized in that the] wherein the individual receivers [(8)] assigned to [a] the trichromatic diffraction pattern [(6)] are interconnected to form a local trichromatically additive brightness value [(11, 11')].

10. (Twice Amended) The grating optical sensor as claimed in claim 8, [characterized in that] wherein the evaluation device includes a white standard forming unit [(13)] whose output signal is a white standard signal and is respectively assigned to [the] that local diffraction pattern [(6) with] having the best agreement between the chromatically additive brightness values [(10, 10')] and a simultaneously maximum trichromatically additive brightness value [(11, 11')].

11. (Amended) The grating optical sensor as claimed in claim 10, [characterized in that] further comprising an adapter [(16) is] provided for varying [the] a 3D grating constant of the modulator [(4)] as a function of a variation in [the] an agreement between the local chromatically additive brightness values [(10, 10')] of the diffraction pattern [(6)] forming the white standard signal.

12. (Amended) The grating optical sensor as claimed in claim 11, [characterized in that] wherein the adapter [(16)] includes a thermal radiation source [(17)] directed toward the modulator [(4)].

13. (Amended) The grating optical sensor as claimed in claim 12, [characterized in that] wherein the adapter [(16)] is assigned a controller which keeps [the] a radiation intensity of the thermal radiation source [(17)] constant during [determination] assignment of a new white standard signal.

14. (Twice Amended) The grating optical sensor as claimed in claim [1] 10, [characterized in that] wherein the evaluation device includes a color value forming unit [(14)] whose output signal respectively corresponds to the sum of the local chromatically additive brightness values [(10, 10')], referred to the white standard signal, of [a] said local diffraction pattern [(6)] having the best agreement.

15. (Amended) A method for generating a white standard signal, comprising:

providing a grating optical sensor, the sensor comprising: [which has] a lens imaging an object space[,]; a diffractive hexagonal 3D grating optical modulator in the image plane of the lens[,] to form at least one trichromatic RGB diffraction pattern; a photoelectric receiver arrangement arranged in the near field downstream of the modulator, having individual receivers configured to generate electric signals in accordance with [the] centrosymmetrically trichromatic RGB diffraction orders[,] of the diffraction pattern; and an evaluation device for the electric signals generated by the individual receivers[,];

[characterized in that] superimposing into the image plane an incoherent background radiation assigned to the object space [is superimposed] by diffuse scattering in one of the pupil of the imaging lens [or in] and a plane conjugate [thereto in the image plane,] to the lens; and

forming a [the] white standard signal [is formed] from the diffraction pattern, assigned to a colorless part of the object space, with identical chromatically additive brightness values and a maximum trichromatically additive brightness value.

16. (Amended) The method as claimed in claim 15, [characterized in that] wherein, when varying [the] an illumination of the object space, [the] grating constants of the

modulator are varied by thermal influence until a new white standard signal is produced in the trichromatic diffraction pattern of a colorless part of the object space.

17. (Twice Amended) The method as claimed in claim 15, [characterized in that] <u>wherein</u> the sum of the chromatically additive brightness values referred to a white standard signal is formed in order to generate a color value signal from the diffraction pattern assigned to a colored part of the object space.